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Journal of the Society of Arts,
AND OF
THE INSTITUTIONS IN UNION.

110TH SESSION.]

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Announcements by the Council.

The One Hundred and Eleventh Session of the Society will commence on Wednesday, the 16th of November, when the Opening Address will be delivered by Wm. Hawes, Esq., F.G.S., Chairman of the Council.

**DEMOLITION OF THE INTERNATIONAL
EXHIBITION BUILDING.**

Tuesday afternoon, at half-past three o'clock, the demolition by gunpowder of the remaining portions of the Great Exhibition Building was proceeded with by the Corps of Royal Engineers from Chatham. There were present on the occasion General Sir J. Burgoyne, Colonel Lovell, Colonel Scott, Captain Fowke, Lieutenant Knocker, and a party of the Sappers and Miners under Colour-Sergeant Cann, Professor Donaldson, Sir Stuart Donaldson, and a large number of scientific gentlemen, together with a considerable crowd of sightseers both within and without the ruins of the structure. The engineering operations had been completed during the day for the purpose of displacing one of the two towers that supported the great dome. The height of each tower averaged 70 feet by 42 feet square, the weight being 1,200 tons, the thickness of the walls being an average of from three to four feet, the superficial area of the towers being about 40 feet square. In order to dislodge this mass of masonry the amount of charge applied was proportioned in the amount of 112 lbs. of gunpowder to each tower; and, in accordance with this arrangement, precisely at half-past three the signal to fire the battery at some fifty yards distance from the structure to be demolished was given (the range in front of the road having been cleared by a strong force of the L division), when suddenly, with scarcely any audible report, one half, but one half only, of the tower rolled over with a loud crash into the Exhibition-road, leaving the other half of the tower standing intact. In the course of an hour the debris was removed from the road. It was then determined that no further operations should take place in connection with the removal of the other half of the tower. A consultation took place amongst the engineers with Sir J. Burgoyne, and it was

determined that the engineers should "shove" it over by leverage, or by a further additional charge the next morning.

Proceedings of Institutions.

HARTLEY INSTITUTION.—In presenting to the Town Council of Southampton their first Annual Report of the progress of the Institution since its organisation in the year 1863, the Hartley Council express the satisfaction with which they look back upon the history of the Institution. They cannot, in giving an account of their stewardship, point to the achievement of any brilliant triumphs, but they unhesitatingly assert that although the progress which the Institution has made may have not been surprising, it has at least been continuous, that its development has kept pace with the opportunities which have offered for the extension of its usefulness, and that it has realised, so far as time has as yet allowed, all the expectations which a rational regard for the conditions in which it is placed, and the machinery at its disposal, could have formed of it. It is, indeed, one of the disadvantages under which the Institution has laboured that at its origin ideas were formed and expectations encouraged by some persons as to the work which it was to do, which, if realised at all, can only be so after the lapse of a considerable time, and by the aid of much greater resources than it at present possesses. Apart from the direct educational influence which it has exercised, it has, indirectly, been the means of fostering the exertions of other Institutions. Thus it has provided accommodation within its walls for the meetings of the Polytechnic, Athenæum, and Microscopic Societies; and it has greatly promoted the establishment of a society* which is calculated not only to contribute an important share towards the advancement of knowledge in this locality, but also to further materially the interests of the Institution itself. By these and other means the Hartley Institution is gradually coming to be looked on as the recognised centre of all associations. If the Institution had been of no further service during this the first year of its organization, than to gather all these associations together within its walls, the Council would have, on these grounds

* The South of England Literary and Philosophical Society which meets in the Institution.

alone, reasonable cause for congratulation. But they have a still more tangible source of satisfaction in the large number of persons who have availed themselves of the advantages of the Institution. The number of members enrolled during the year has been 531, of whom seven are life members, 19 are honorary life members, 131 are family members, and 374 are ordinary members, but this statement by itself gives a very imperfect idea of the number of persons who have frequented the Institution during that period. Putting aside all reference to the large numbers who have visited the Museum on public days, and to the casual attendance upon lectures, the ticket of each ordinary member carries with it a duplicate admission to the privileges of the Institution for one of the members of his family; in addition to which, he himself has the power of admitting friends to the museum, library, and reading-room, so that the real number of persons frequenting the Institution is considerably greater than the mere list of members would indicate. The Hartley Council, therefore, feel justified in asserting that the Institution, during the short period that it has been already established, has exercised an unquestionable, though, perhaps, in many respects, a silent influence on the mental culture of the town and neighbourhood. However desirable it may have appeared that it should assume the position and functions of an educational establishment, the Hartley Council are convinced that in the present stage of its career such a course would involve requirements with which it is totally unable to comply. Even were the machinery available for such a purpose, much more extensive than it really is, it is very questionable whether the Institution could enter on such a path as has been adopted by the Mechanics' Institutes of some of our larger towns without interfering seriously with the objects which are specified in the scheme laid down for its management by the Court of Chancery. Under these circumstances, and as all movement in this direction must be of a tentative character, the Hartley Council have confined their efforts for the establishment of classes to those branches of knowledge for instruction in which the Institution possesses adequate appliances, or to those in which the experiment could be made without incurring any serious detriment in case of failure. The growing importance of natural science as an element of general education, and the absence in the town of any recognised means of instruction in it, seemed to offer a favourable opportunity for opening a class in the most popular branch of scientific study—chemistry. A French class has also been established. Although the attendance on these classes has not been so large as could have been wished, the Council hope that as they become more widely known they will be better appreciated. When the subject of the appropriation of the Hartley bequest was under consideration, the attention of the Town Council was urgently drawn by Dr. Lyon Playfair and others to the desirability of including instruction in navigation amongst the objects for which it might be made available. The utility of such a school is beyond question, and it is hardly possible to see how it could be more favourably started than in connexion with the Hartley Institution, especially if a teacher be appointed possessing the certificate of the department of Science and Art, in which case, with the aid of a moderate fee from the students, there is every reason to believe that the school would be almost if not entirely self-supporting. The Hartley Council, therefore, recommend that steps should be at once taken to commence a school of navigation in connexion with the Institution, and request power accordingly to take such steps. The Hartley Council have received an application from the committee of the School of Art requesting that the school might be transferred to the Institution. Although the Council consider that the union of the school with the Institution might have its advantages, perhaps more prominently by the facility it would afford to the furtherance of the establishment of the navigation department before alluded to, they regret that the accommodation of the Institution at pre-

sent is not such as to meet all the requirements of the School of Art. It may be a consideration hereafter to erect a separate building on the unoccupied land behind the lecture hall of the Institution, and the Council will at the proper time bring the subject more fully before the Corporation. The library contains at the present time upwards of 5,000 volumes of works in all departments of knowledge, the majority of them being of a standard character. The expenses connected with the furnishing and completion of the building have been so great this year that the Council have been compelled to devote a much smaller sum to the augmentation of the library than they could have wished, but they trust that as claims of the former kind diminish they will be gradually enabled to do fuller justice to so important a department of the Institution. The reading-room attracts a considerable number of visitors during the day, but the Council regret that it is not so largely frequented in the evening as they could wish, more especially by that class of the community who might have been expected to avail themselves of its resources at that time, viz., clerks, trade assistants, and others engaged during the day. This is the more surprising as it was with a special view to the interests of this class that the hour for closing the reading-room was prolonged from 9 till 10 p.m., and that the terms of admission to the Institution were made so low as to be little more than nominal. The Council trust that employers will impress upon their assistants the important advantages which the Institution holds out to them, and will exercise their influence in inducing them to join it. The Council have received several suggestions on the subject of introducing newspapers into the reading-room, but have not hitherto felt at liberty to recommend the adoption of such a course to the Town Council. The Hartley Council have every reason to report satisfactorily of the progress which the Museum has made since the opening of the Institution, especially when it is remembered that with scarcely an exception the whole of the specimens have been received as voluntary contributions, the necessary demands upon the income of the Institution rendering it impossible for the Council to take advantage of several opportunities which have occurred for the purchase of partial, or complete collections, and which under more favourable circumstances they would have been glad to embrace. Although it must be the work of many years to place the Museum on a footing worthy of the Institution and of the town, the Council feel no hesitation in asserting that it already offers much that is both interesting and instructive; and they would more particularly instance the nucleus of an economical collection which it contains as one which, when more complete, will be calculated to be of great value in promoting the education of the public in a knowledge of those "familiar things," but which have been hitherto too much neglected as a branch of popular instruction. The large number of persons who visit the Museum on public days is a good indication of the interest which it awakens, and the Council hope that as their resources increase they will be able to make it still more useful as a means of education. They need only further observe that the present arrangement of the contents of the Museum is necessarily only of a temporary character, and that the labelling of the specimens is proceeding as rapidly as circumstances will permit. The donations, both to the Museum and library, have been very numerous. The following lectures have been delivered in connection with the Institution during the past year; for those marked with an asterisk the Council are indebted to the gratuitous assistance of the gentlemen by whom they were kindly given:—"The Solar Spectrum," by Dr. Bond; "The unity of plan of the Vertebrate division of the Animal Kingdom," by Mr. Waterhouse Hawkins; "The relation of the Vegetable Kingdom to the natural wants of Man," by Dr. Lankester, F.R.S.; "The Life and Writings of Oliver Goldsmith," by the Rev. J. M. Bellow; "The Weapon of the Modern Artillerist," by Captain Drayson, R.A.;

"Life and Light," by Mr. R. Hunt, F.R.S.; "Some illustrations of special adaptation in the Animal Kingdom," by Mr. Gosse, F.R.S.; "Scientific Researches in the higher regions of the Atmosphere," by Mr. Glashier, F.R.S.; "The Nature and Origin of Coal," by Dr. Bond (two lectures); "The Metamorphosis of the lowest tribes of Animals," by Dr. Carpenter, F.R.S.; "The Age of Bronze," by Mr. J. Lubbock, F.R.S.; "The Gases," by Mr. J. Pepper; "Coal in its relation to Modern Civilization," by Dr. Bond (two lectures); "The Life and Writings of Milton," by the Rev. J. M. Bellow. A course of three lectures was also given during the month of June by Dr. Bond, in illustration of some of the contents of the Museum. The attendance upon the above lectures was, on the whole, good and encouraging. Although the Hartley Council are prepared to acknowledge that isolated lectures on literary and scientific subjects have a certain value in an educational point of view, there can be no question that in most cases they give so imperfect an idea of their subject as to be of but very limited utility for educational purposes. With the view of obviating as far as is possible this defect the Hartley Council propose to provide short courses of three or four lectures each, after the example of the Royal Institution and others of a similar character. The Council report that the experiment of the first of a series of concerts in illustration of the music of the great masters, which was given in May last, and devoted to the music of Mozart, was in every respect a satisfactory one. They hope to repeat these concerts on a more extended scale. The balance-sheet of the income and expenditure of the Institution is submitted, showing an annual income of £1,243, of which £865 19s. 10d. is derived from permanent sources, and an expenditure which leaves a balance of surplus in the treasurer's hands of £6 5s. 4d. The Hartley Council, in compliance with one of the clauses of the scheme for the management of the Institution, which specifies that a sum of not less than £50 shall be yearly set apart towards the establishment of an observatory and the formation of a botanic garden, have set apart the sum of £100 for the above purposes, being £50 for each of the two years that the Institution has been open.

HITCHIN MECHANICS' INSTITUTION AND PUBLIC LIBRARY.—The annual meeting of the above Institution was held at the Town-hall on Friday evening, the 17th of October, 1864, Mr. John Morgan, vice-president, in the chair. The report stated that, during the past year, the library had been more used than in any previous season. The entries this year amounted to 6,286, showing an increase of 805 over last year, and 90 over any former year, and a gradual increase from the year 1859. The subscriptions had increased, and by a careful expenditure, the income had proved rather more than sufficient to defray all charges, notwithstanding a loss on the lecture account. Seven lectures were delivered during the winter session, but the attendance has gradually diminished. The low charge made for admission of members and their families was established with the object of inducing larger numbers to attend the lectures, but the committee regret that, in consequence of the small attendance this year, the receipts have fallen short of the expenditure. The committee trust that the course of lectures for the coming season will meet with general approval. At the last Examination of the Society of Arts, held in May, two members obtained Certificates of Merit—one for proficiency in Geography, the other for Free-hand Drawing. The sub-committee appointed to consider what steps could be taken to carry out the project of a Union of Institutions in this neighbourhood, report that they do not find it practicable to form such a Union at the present time. The sub-committee have entered into communication with the neighbouring Institutes. The replies received have been either unfavourable or doubtful. Until classes are in existence, and in active work, for carrying on which the need of co-operation is felt by the Institutes, the project does not appear likely to receive support.

Fine Arts.

ROUEN EXHIBITION, MUSEUMS, IMPROVEMENTS, &c.—The capital of Normandy has always been one of the most interesting places in France, but, during the last six or seven years, it has become as remarkable for its encouragement of art as for its antiquities. In 1833, or thereabouts, the authorities and amateurs of the neighbourhood seem to have determined not only to protect and illustrate the artistic remains of past centuries, but to render Rouen the local centre of modern art. In the year 1834 a society was formed, with the title of *La Société de Amis des Arts*, "to aid the progress of art in Rouen, and to encourage artists by the purchase of works from the exhibitions organised by the municipal administration." The condition of membership is the payment of thirty francs on the occasion of each exhibition, and subscribers pay ten francs each, the pictures purchased being distributed by lottery amongst both classes, every ten francs carrying the right to a chance. For some years the exhibitions were annual, but at present they take place every second year, and, since the establishment of the society, it has purchased and distributed nearly a thousand pictures, at a cost of upwards of 180,000 francs. The progress of the Society is best indicated by the fact that in 1849 the Society was able to expend 6,594 francs on 45 works of art, and in 1862 it laid out 21,520 francs, and distributed 60 pictures amongst its members. The exhibitions are held in the Hotel de Ville, and the municipality votes a sum of money to cover the expenses, and another in aid of the funds of the Society, or for the purchase of works of art for its own public gallery. The amounts of the two votes this year were, respectively, 6,000 and 2,000 francs. The exhibition, in order not to clash with others of the same class elsewhere, opened on the first of the present month, and is to remain open till the middle of November; the price of admission for five days in the week is by tickets, which cost 25 centimes, or less than 2½d., and each of these gives the right of participating, *pro rata*, in a secondary lottery arranged by the authorities. Finally, there are two entirely free days towards the end of the exhibition. The number of works of art in the Exhibition now open is 819, and many of those are by well-known artists, amongst whom may be mentioned André, Bellangé, Court, Flandrin (Paul), Flers, Glaize, Grobon, Grosclaude, Guadin, Guinand, Hamon, Hillemaicher, Holfeld, Jacquand, Lefebvre, Leleux, Magand, Pasini, Phillippoteaux, Schnetz, Vauchet, and Yvon. A large proportion of the pictures were sent by artists resident in Paris, and in going through the Exhibition last week we recognised many works which attracted attention at the Paris Exhibition, but the resident artists of Rouen and other parts of Normandy have supplied a fair share, and it should not be forgotten that of those who have taken up their abode in Paris, a great many are natives of Normandy. M. J. Court, the present director of the public gallery of Rouen, the painter of a large well-known picture now to be seen in the Exhibition Boissy-d'Anglas, presiding over the National Convention, and formerly one of the most popular portrait painters in Paris, is a native of Rouen; so are Eugène Bellangé and many other well-known artists. The present Exhibition is arranged in the public gallery of the town, and, as was formerly the case with the Paris exhibitions when held in the Louvre, the temporary collection covers the permanent one. The latter dates back as far as 1809, and the works have been mostly obtained within the department itself; the Imperial government has, however, contributed many works of art purchased at the Paris Exhibitions for distribution among provincial museums, and only the other day some remarkable pictures and busts were received from the Department of Fine arts in Paris; the municipal authorities have also voted several sums to purchase addi-

tions, and many donations have enriched the collection, which includes some remarkable works. Amongst others may be mentioned "The Virgin Surrounded by Angels," known as the "Vierge de Saint-Sixte," by Raphael, and small but fine works by the same hand, and in that master's best style. The "Virgin in the midst of a group of Young Girls," by Van Eyck. The "Conversion of Saint-Matthew," by Valentin. "Saint François," by Anabale Carracci. A "Ecce-Homo," by Miguard, and pictures by Jouvenet, Vernet, Lahire, Le Guerchin, Lemonier, and other masters, besides some good pieces of sculpture, ancient and modern, the whole forming a very worthy collection. In the year 1833 also was founded the *Musée départemental d'Antiquités*, which was opened to the public in the following year. Rouen offered several buildings well suited for such a purpose, amongst others one of the churches suppressed in 1791—*Saint-Pierre du-Chatel*, an edifice of the 15th century, the tower of which is entire and of great beauty, now occupied by a shot factory—but the cost of putting such a building in thorough repair placed it out of the question. No one building could, however, have been better adapted for the purpose, namely, the ancient convent of *Sainte-Marie*, a cloistered building, forming a quadrangle with a garden enclosed. The entrance is by a gothic porch, in one corner, which, like two sides of the quadrangle, is vaulted, and seems exactly designed to secure a collection of specimens of ancient art; and here is already a museum which in some respects may vie with the Hotel Cluny in Paris. The glory of the place, the first objects that meet the eye, are the exquisite stained glass windows brought from the Church of Saint Elor, now a protestant chapel, and other dismantled edifices in the town; they are in admirable condition, and for design and colour have few rivals, and their size being just suitable for the old windows of the convent they are seen to perfection. These beautiful windows illustrate the progress of the art from the 13th to the 17th century, to an extent which does not exist in any other museum in the world. The specimens of ecclesiastical sculpture in stone and wood, terra-cotta works, church furniture and utensils, are numerous, and some of them of rare beauty, especially the enamelled works of the early Christian period, in the semi-Byzantine style. There is also a large collection of flints illustrating the age of stone; of bronze implements and arms; of armour of the middle ages and renaissance; of pottery, glass, and metal works of the Gallic and gallo-Roman periods, found principally in the excavations at Lilleborne; a mass of objects of middle age and renaissance art; a good collection of coins; a few fine Limoges enamels; and some specimens of mosaic, including one Roman pavement fourteen feet square found at Brotorme. Among the archaeological curiosities are several charters of the 10th, 11th, and 12th centuries, one signed by William the Conqueror and his son Rufus (with crosses, merely, of course), and bearing date 1038; others of Henry I. and Richard I., all in excellent condition; the oldest, however, is one of Richard II., Duke of Normandy, of the 10th century, but without date. There is a small glass box containing what remains of the heart of Richard Cœur de Lion, found, together with a monumental effigy of that monarch, in the Cathedral of Rouen not long since; some curious early watches; the double-bladed sword-stick with which the Minister Roland committed suicide after his wife's execution; and two swords used by Talma on the stage. The larger specimens of sculpture and other objects are placed in the garden, or built in appropriate positions into the walls of the old conventual building, which is a mass of beautiful arches, sculptured key-stones, bas-reliefs, and mural tablets and ornaments; and side by side with these and with ancient fountains in stone and lead, is a heap of stone balls, one of very large size, with which Henry V. and others pounded the walls of Rouen during the many sieges which it has sustained. The brothers Corneille were natives of Rouen, and the houses in which

they were born were only demolished a short time ago, and the door of that in which Pierre was born is now to be seen in the museum forming the entrance to one of the cloisters. The museum is growing at a rapid rate, and will doubtless become one of the best in France, out of Paris; it is not yet catalogued, hence the importance of the details here given, but most of the articles are carefully labelled. A few weeks since a very interesting feature was added to it—and which was one of the principal inducements of our visit to the town—namely, a fine collection of the old *Faïences*, earthenware of Rouen and other places, made by M. Pottier, the conservator of the museum, and purchased of him by the local authorities. The collection is arranged in five principal groups, with four subsidiary series of illustrations, in one line of presses, admirably arranged and perfectly lighted. The first great compartment contains specimens of the original ware and its first artistic development, the oldest piece being a water bottle inscribed with the place and date of manufacture—"Faict à Rouen, 1647." This is the earliest known epoch of the art in this locality, derived from Nevers, and introduced by one Jehan Custode, belonging to a family of old potters of that place. The principal makers known are Edme Poterat, Sieur of Saint-Etienne, who obtained a patent, or concession, for the manufacture in 1644, and his son Louis, who obtained a similar grant from the Crown in 1673, and who made porcelain as well as faïences. The specimens of this early period are of a milky white, with designs in blue, in the Indo-Chinese style in use at Nevers; but Louis Poterat studied in Holland, and afterwards introduced imitations of the ware of that country and, indirectly, of Japan. The second large case and two small ones exhibit the manufacture at its most brilliant period, namely, towards the end of the seventeenth century, when the Minister Colbert did all in his power to encourage the Rouen manufacture, and brought the ware under the notice of the king. The events of the time aided this in an extraordinary manner. The condition of the finances was so bad that Louis XIV. was forced to descend from gold to silver plate, and the courtiers from silver to earthenware. Saint Simon, in his memoirs, says:—"Many were compelled to send their plate to the Mint and to adopt faïence"; necessity, on the one hand, became the mother of improvement on the other, and the poverty of the Court was the fortune of the Rouen potters. The beauty of the ware of this period is certainly remarkable; the ground is even in colour and texture, the forms are simple and regular, and the ornamentation is varied, original, and admirably executed; the blue became slightly mixed with red, and in some cases yellow and green were introduced—a handsome salad bowl, signed Brument, 1699, being a fine specimen of golden colour. The ornaments were all done by hand, and consequently each piece exhibits a certain amount of originality. The boldness and delicacy of the work favours the opinion that the outlines were traced by artists and the filling in by the hands of women. The employment of females in this manufacture is proved, to a certain extent, by a passage in the will of Edme Poterat, who died in 1687, leaving all his property to his wife, Marie Leguien, which says that all or nearly all he possessed had been earned by her care, she having had the entire direction and management of his manufacture of faïence, and of all the utensils appertaining thereto during his lifetime. The number of specimens of the best epoch amount to more than a hundred, and include a number of very large round dishes of perfect shape; many of the plates bear the arms of noble families for which they were made, while others are fancifully decorated with the words and music of popular airs. One jug, signed "Anno Domini, 1708, 28e Juillet," is remarkable as one of the few specimens of the period in which the human figure is treated with much success; the design is that of Venus or Ariadne sleeping beneath a starry sky, and surrounded with foliage, flowers, birds, and insects in

varied colours. There is also a fair collection of other articles, such as writing desks, inkstands, pierced sugar castors, salt cellars, tripods, cornucopias and vases. There are some curious copies of Chinese designs; and seven pieces ornamented in niello or black arabesque, on a chamois coloured ground of great beauty and variety. The examples of the third division commence with the eighteenth century, and exhibit undoubted indications of the decline of the art more especially with respect to decoration; the forms also are less pure and the applications more fantastic, but including several historic pieces, such as a service with the arms of the Duc de Montmorency-Luxembourg, governor of Normandy. The fourth section of the exhibition shows the absolute decay of the art—tortuous forms, uncertain drawing, and glaring colours, in short *rococo* of the worst kind, relieved, however, here and there, by fine bold pieces of ware, worthy of the former periods. By 1780, or thereabouts, almost all trace of artistic feeling had disappeared, and the Rouen manufacturers, who had enjoyed a high reputation for a century and a half, gave themselves up to the production of the commonest crockery. After that period the manufacture almost ceased entirely, and the present exhibition derives additional interest from the fact that great and successful endeavours are now being made to revive it in Rouen and other places. The gem of the exhibition, or at least of the curiosities included therein, is a celebrated violin of the ordinary size, which was in the collection Sauvageot, and which furnished M. Champfleury with the theme of a poem. This piece is of a late period, but its ornamentation is admirably executed, but resembling the productions of the Dutch makers rather than of the French. The principal design represents a lady playing a spinette, a gentleman with a violin, and three or more other figures in the costumes of the time of Louis XIV., while a group of angels in the clouds exhibit musical instruments and books, and one of them holds a scroll with the following inscription:—"Musica et gloria in Aer." The other parts of this curious piece are ornamented with great taste and skill. Since the above was written we have an account of the discovery in a sand pit, in the village of Ozon, near Châtellerault, of another musical instrument in faience—a kind of ophicleide. It is also covered with paintings, which are said to be highly artistic. In the interior are three letters, A R O, others being illegible, and it is supposed they formed the word *Pezaro*, and that the specimen discovered is of the famous Majolica ware which ornamented the palaces of Tuscany in the fifteenth and sixteenth centuries. This curious example is to be placed in the museum at Poitiers. The fifth division consists of specimens of ware from other parts of France and from abroad, but this is too incomplete to call for any special remark. The demolition and changes that have been and still are being made in the town, deserve special notice, but it must be deferred to another opportunity.

FINE ART IN PARIS.—The pupils of the *École des Beaux Arts* who obtained the prizes for Rome the other day, six in number, were entertained at dinner at Saint Cloud by the Emperor on Sunday last, together with the Minister of the Imperial Household and of the Beaux Arts, and the chiefs of all the departments and public establishments connected with that ministry—Comte de Nieuwkerke, Comte Baciocchi; Messieurs Courmont, Camille Doucet, Auber, Robert Fleury, and Schnetz. In the evening the Empress presented each of the young artists with a photographic group of the Emperor, herself, and son, signing each copy with her own hand. Acts like these are both graceful and politic, and tend to maintain the artist in the high social position he holds in France.—The municipal authorities of Paris have voted the sum of 66,000 francs for the repair of the stained glass windows of the various churches in the city. The restorations are to commence with Saint-Germain-l'Auxerrois, Saint-Eustache, Saint-Gervais, Saint-Severin, Saint-

Merry, Saint-Sulpice, Saint-Etienne-du-Mont, Saint-Nicolas-du-Chardonnet, and Notre-Dame-des-Blancs-Manteaux; a long list, but far from complete.

Manufactures.

THE FACTORY ACT IN THE POTTERIES.—An impression appears to prevail in some parts of the Potteries that the limitation of the hours of work imposed by the Factories Act Extension Act does not take effect until the 26th of January next—that being the time when children of twelve will work full time. In theory, the Act has been in operation since the 26th of August last, although, owing to the absence of the official abstracts, it has not been made effective. Copies of the abstracts, however, are now being supplied to the manufacturers throughout the district, so that it will be no longer safe to disregard the provisions of the Act. S. W. May, Esq., has been appointed sub-inspector for the pottery district.

HARDENING CAST IRON.—A patent has been taken out for a new method of hardening the surface of castings. When the piece is filed up, or otherwise finished, it is brought to a cherry red heat, and then immersed till quite cold in a solution composed of 1,080 grammes of sulphuric acid, and 65 grammes of nitric acid to 10 litres of water. It is added that the thickness of the stratum hardened is sufficient for all ordinary purposes, and that the iron suffers no distortion.

ALCOHOL FROM COAL GAS.—Berthelot, in his new work, comprising the whole of his lectures on Organic Synthesis, delivered at the College of France during the present year, has demolished the proposition for making alcohol from coal gas, showing that the process is extremely costly and the resulting spirit extremely impure.

PATTERN POST.—The Postmaster-General has issued an order that on the 1st November next, and thenceforward, patterns of merchandise may be transported by post between England and Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland, by packet, at the following rates of postage, which must be prepaid by means of postage stamps, viz.: For a packet not exceeding 4 ozs., 3d.; above 4 ozs., 6d.; above $\frac{1}{2}$ lb., 1s.; above 1 lb., 1s. 6d.; above $1\frac{1}{2}$ lb., 2s.; every additional $\frac{1}{2}$ lb., 6d. Special attention is directed to the following rules and regulations, which will be strictly enforced: 1st. No packet of patterns must exceed two feet in length, breadth, or depth; exceeding such dimensions, it will be treated and charged as a letter. 2nd. The patterns must not be of intrinsic value. This rule excludes all articles of a saleable nature, and, indeed, whatever may have a value of its own, apart from its mere use as a pattern; and the quantity of any material, sent ostensibly as a pattern, must not be so great that it can fairly be considered as having, on this ground, an intrinsic value. Packets containing patterns of intrinsic value will be treated and charged as letters. 3rd. There must be no writing or printing other than the address of the sender, a trade mark and numbers, and the prices of the articles; otherwise the packet will be treated as a letter. 4th. The patterns must be sent in covers open at the ends, so as to be easy of examination. Samples, however, of seeds, drugs, and so forth, which cannot be sent in open covers, may be enclosed in bags of linen or other material, tied at the neck; bags so closed that they cannot be readily opened, even although they be transparent, must not be used for this purpose. Non-compliance with this rule will also subject the packet to be treated as a letter. In all other respects the regulations of the colonial book post will apply to the pattern post with the above colonies. Under these regulations, in order to prevent any interruption to the regular transmission of letters, a packet of patterns may, when it is necessary, be kept back for twenty-four hours beyond the time when, in the ordinary

course, it would be forwarded. N.B.—The rule which forbids the transmission through the post of any article likely to injure the contents of the mail bags or the person of any officer of the Post-office is, of course, applicable to the pattern post; and a packet containing anything of the kind will be stopped and not sent to its destination. Another order, to the same effect, states that on the 1st November next, and thenceforward, patterns of merchandise may be transmitted by post between England and the Republic of Hayti, by packet, at the above rates of postage, which must in all cases be prepaid by means of postage stamps.

SEWAGE MANURE.—Baron Liebig, in a letter lately addressed to Lord Robert Montagu, says—"The natural laws which govern the permanent fertility of soils and the increase of their produce are, from circumstances which I cannot detail here, very little understood by the British farmers; and hence arises a fear that the use of sewage, which ought to be a lasting benefit to agriculture, may be regarded, after a few years, as a veritable detriment by the same farmer who, in the first years of its application, would assuredly give it his approbation. In what may be termed its natural state it is not a universal manure, like stable dung, which is efficacious at all times and on all localities, but a special manure, the continual application of which exclusively tends to impoverish the land. If clearly understood and properly managed, the employment of sewage will prove a blessing to agriculture; and those who, by unwearied perseverance, have at last seen the consummation of their labours, may justly be looked upon as the benefactors of their fellow-men. But loud would be the outcry should the agriculturist, either by his own ignorance or the want of forethought in others, find himself misled. Our name would then become a byword, and instead of gratitude be recollected with a curse. There are two things which must be done—first, it must be made intelligible to all that sewage in its natural state does not replace stable dung in its entire efficacy, and that, if used exclusively, it will produce abundant crops *only for a time*; secondly, that in each crop the composition of sewage ought to be corrected, according to the nature of the soil, by adding those ingredients which are wanting in sewage, and which the plants to be grown require in the largest proportion. The composition of sewage being once perfectly known, a receipt for what is to be added could be made out and put in the hands of every farmer who uses it; and it remains a question whether it is not possible for the company itself to add those ingredients wanting in the sewage according to the demand of the crop to be grown."

Commerce.

ABERDEEN STRAWBERRY TRADE.—During the present season, from Aberdeen, the quantity sent southward chiefly to London, to be manufactured into preserves, amounted to about thirty-five tons. This is independent of considerable quantities used at home for the manufacture of "preserves" on the wholesale principle, and for ordinary domestic use, &c., which must have brought up the total quantity to something like 50 tons. A ton of strawberries is worth from £25 to £30. This important branch of market-gardening promises to extend. It is only a few years since strawberries began to be exported southward at all, but the demand is beyond the supply.

RAGS.—Messrs. W. Greame and Co. remark that the downward tendency in prices of paper rags still continues, and where sales of low descriptions have been forced, prices have shown a decline of nearly 30 per cent. from those ruling in June last, leaving a heavy loss to importers, and in low qualities of Syrian, Greek, Turkey, and Bombay cottons the decline is even greater, while the finer qualities above 20s. in value have not given way more than 10 per cent. This extraordinary reduction,

which even paper makers did not anticipate three months ago, has arisen from several causes, the chief of which is the large importation of low qualities which have been forced on the market. The prices of paper rags for the last five years have not been lower than at present: the average of Egyptian cottons may be taken as a guide, and the auction prices are found to be realized as follows, viz:—

		White.		Blue.		Coloured.	
		s.	d.	s.	d.	s.	d.
1860	January	16	6	13	0	11	6
	June.....	15	0	11	9	11	3
	November ...	14	0	11	6	10	9
1861	October	15	3	11	6	10	9
1862	February	13	3	10	9	8	9
	May	12	3	10	3	9	6
	June.....	12	0	10	0	9	3
	October	15	0	12	6	11	3
1863	January	15	9	14	3	12	3
	February	16	0	13	9	12	9
	April	15	6	12	0	12	0
	June.....	16	6	14	0	12	0
	November ...	16	6	13	0	12	0
1864	June.....	16	6	14	0	12	6
	July.....	14	3	12	0	11	0
	October.....	12	0	10	0	9	0

Woollens have also shared in the general depression of trade, and at the public sales on the 6th of October the prices realized show an average decline of about 10 per cent. on previous auction rates July 29th; the decline is most marked in the lower qualities, for which there is little demand. Should any orders be received for grey blankets from America, these low classes will improve. The chief feature to notice in woollens is the import of French rags (four or five shipments having been made as a trial), and taking into consideration the depressed state of the Yorkshire markets caused by the Leeds Banking Company and other failures, prices realized are considered satisfactory.

PETROLEUM.—The exports from New York from January 1 to September 20 amounted to 15,637,366 gallons, against 14,597,246 gallons the same period of 1863. The following is the quantity exported from other ports from January 1 to September 17:—

	1864. Gallons.	1863. Gallons.
Boston	1,110,644	1,377,631
Philadelphia.....	5,145,767	4,895,895
Baltimore	647,844	729,792
Portland	5,336	288,567
Total.....	6,909,591	6,791,855
Total export from United States	22,546,957	21,389,131
Same time 1862		6,242,912

INDIA RUBBER.—In the last ten years there has been exported from Para 1,059,952 arrobas of fine rubber, and 378,792 lbs. of ordinary. The Brazilian arroba is rather more than 32 lbs., and hence the total shipments have been upwards of 20,600 tons. Formerly the principal shipments were to the United States, now the principal exports are to the United Kingdom. Last year 65,649 cwts. were received in Great Britain from all quarters. The tree which yields the mithy sap in South America is found in great abundance on the banks of the Amazon and most of its explored tributaries. Previous to 1840 it was exported in but small quantities, and chiefly in the form of shoes. After that period, new applications of the article having been made in England and the United States, the export of shoes was soon discontinued, but shipments in bulk largely increased; which increase, with some alterations owing to circumstances affecting consuming markets, has since been progressive. Stimulated to spasmodic exertions by profits which equal in a day the wages of a month given to ordinary work, the half-

civilized labouring population of the province, neglecting the culture of the soil and those industrial pursuits by which they might be permanently benefited, flock to the marshy districts in which the rubber tree is found. There passing many months of the year, with slight shelter and slighter clothing, with no sanitary regulations and no precautions against the malaria which pervades the banks of the Amazon and its tributaries—ravaged by intermittent fevers, and spending in nightly orgies the money so recklessly acquired, their numbers are fearfully diminished, and the population demoralized, with no benefit to themselves and no permanent advantage to the state, which is poorly compensated by a heavy export tax for the sacrifice of its prospective prosperity. As the rubber tree is found principally upon the public domain, upon which the right to labour without restriction or system is free to all, it is not likely that these evil influences will speedily be diminished. The tree is but little injured by the extraction of the sap. It is found in abundance on the islands at the mouth of the Amazon, and on the banks of that river and its affluents in the Province of Para—the Xingu, Topasoz, Amasoz, Gary, and Tocantins. Beyond the limits of the province, higher up the river, even to the borders of Peru, as new tributaries are explored, a more abundant growth is found, and there seems no immediate limit to the preparation of the india rubber, except the scarcity of hands for its collection and the unhealthiness of the districts in which it is procured. India rubber is found in great abundance in the forests along the whole of the sea coast of Ecuador, and there is much enthusiasm for the extraction of this elastic gum, which is already an important article of export. From the port of Guayaquil 2,227 cwts. were shipped in 1863.

THE CANALS OF FRANCE are assuming an important development. Notwithstanding that the total tonnage of the barges passing on the canals has increased from 1,246 million tons in 1860 to 1,495 million tons in 1862, or an increase of one-fifth, the Government is urging the construction of additional canals, even in opposition to the railroads.

TENERIFFE COCHINEAL.—Cochineal is the principal article of export possessed by the landowners of the Canaries, and constitutes the chief wealth of the islands. It was first exported in the year 1831, and has gone on progressing until it now reaches $1\frac{1}{2}$ to $2\frac{1}{2}$ million pounds annually. There are, however, material annual fluctuations, caused by either great heat or very heavy rains, both of which causes destroy many of the insects. It is calculated that a fanegade of land (about 1 acre 16 perches) destined for the cultivation of cochineal, if sufficiently watered, will produce in the following year at least 250 lbs. of cochineal grain ready for sale. This quantity, at the price of 3s. 2d. per lb., will realize £39 11s. 8d. Deducting one-fifth in order to cover the cost of planting, pressing, &c., the net profit of the cultivation will amount to £31 15s. From Guatemala the export of cochineal ranges from 600 to 750 tons per annum, according to the character of the season.

Colonies.

NATAL.—Flax culture is one of the branches of industry to which midland farmers look with much hope. About two years ago Mr. Colin Hunter arrived here, with the view of establishing the cultivation of this product in Natal. Since that time he has introduced large quantities of seed, and erected very complete and costly machinery. This seed was distributed among about forty farmers, all of whom planted it. The result, though not generally successful, has not in any way shaken the confidence of the farmers in the ultimate success of the enterprise. Several accidental causes militated against the plant. The

seed was not acclimatised. The proper season for sowing was not known. Unusually severe weather interfered with the young crops, and a particular sort of caterpillar proved very destructive. The first of these drawbacks will soon be remedied; the second can only be obviated by experience which is now gained, and the last two will disappear when larger local knowledge teaches the farmer the right time of the year to plant in. It was stated in evidence before a committee of the Legislative Council that the farmers remain confident about the future, and attribute the failure of the crop to the foregoing incidental causes. As a proof of this they are determined to try again,—encouraged by the results attained in those cases where the crop has been fortunate enough to mature. The Council has, therefore, recommended that the seed now in Mr. Hunter's possession, and which is of a superior and more suitable description, be purchased by the government and given to farmers applying for it, under the condition that it be grown for seed. This will involve an expenditure out of the revenue of a few hundred pounds, but when it is considered that the object sought after is the introduction into our midland districts of a new exportable product, adapted to the circumstances of small farmers, and always enjoying a ready market, the outlay seems a wise and reproductive one. Flax culture, like every new industry, may need a little nursing at the off-start, but when it is once established, in a part of the colony where some new agricultural industry is so much needed, all feel convinced that it will amply repay the sacrifice.

REPRODUCTIVE WORKS IN TASMANIA.—The Select Committee on what is termed "Reproductive Works," have brought up their report of what they sat to consider, namely, new roads and tramways.

ROADS.	About Miles.	To Cost.
1. Launceston and Ringarooma	39 $\frac{1}{2}$	£11,040 1
2. Bridport and Scott's New Country	13 $\frac{1}{2}$	3,294 5
3. Scott's New Country to join Ringarooma	5	1,600 0
4. Bridport and Scott's New Country Road	14	3,360 0
5. Green's Creek (Port Sorell) and West Tamar Road	342 19
6. Ulverstone, running southerly ...	20	9,000 0
7. Direct Huon Road, from Hobart Town to Leslie	11	8,101 16
8. North-West Bay and Sand Fly Basin Road	16	11,200 0
9. Southport and Port Esperance Tramroads	23	13,662 0
10. Tramway Cam River	6	600 0
11. Road from Cambridge to the Bluff	2,000 0
12. Bridge over the Leven and Forth	...	2,650 0

There is a bed of freestone twelve miles from Launceston on the line, which has been used for grindstones and building purposes at St. Leonard's, and fifteen miles from Launceston there are ridges of slate that could be used for flagging and roofing. It is in appearance similar to English slate.

IMMIGRATION IN TASMANIA.—The select committee appointed on the 14th July, 1864, to inquire as to whether any means could be devised whereby immigration might be encouraged with increased advantage both to the immigrant and the colony, having examined many competent witnesses, report that they commenced their inquiry with a full sense of the vital importance to the best interests of this community of an influx of agriculturists and small farmers, who could be induced to settle down and cultivate the agricultural areas contemplated by the Waste Lands Act, 1863, and have kept in view the adoption of some plan untried in Tasmania since the abolition of free grants in 1831, by which a population could be encouraged

to settle on the waste lands, and after having the guidance of a number of witnesses, have decided to recommend to your house the following plan:—That free grants of small locations shall be made to emigrants in proportion to the amount expended by them in bringing themselves and their families to Tasmania, and grants to be limited to certain areas, and to be conditional on actual residence and occupation and cultivation. No grant deed to issue until the required conditions had been fulfilled. The class of emigrants with whom this scheme might first be tried is, in the opinion of your committee, that known in Germany as small freeholders, who possess sufficient means to emigrate at their own expense. They are known to be a moral and industrial race, and your committee have evidence of such a class having proved highly useful emigrants in South Australia. If located in communities they would form the nuclei of large and thriving settlements in those neighbourhoods where the policy of the present ministry proposes to establish reproductive works. The committee confidently anticipate that some such scheme as that now propounded would further the interests of the colony, and one of the greatest recommendations would be the absolute absence of any expenses.

SALMON IN TASMANIA.—It is now ascertained that the number of living salmon in the breeding ponds at New Norfolk is not less than 6,000, and there is reason to believe may be as large as 10,000, instead of only 3,000 as estimated some time since; and that of trout there are quite 400.

RAILWAYS IN VICTORIA.—The traffic returns of the Victorian railways for the month of July show the following results:—

	Number of Passengers.	Amount.	Goods.
Murray line.....	23,529	£761 6 4	£1,426 14 10
Ballarat line.....	13,176	6,069 18 8	6,988 3 2
Williamstown line	25,134	6,760 13 8	11,880 8 9

Together these results give £13,591 18s. 8d. for passenger traffic, and £20,309 6s. for goods, making a total for the month of £33,901 5s. 5d. against £33,641 5s. 6d. taken in the corresponding month last year.

Obituary.

WILLIAM TAIT.—The death of Mr. Tait, of Prior Bank, formerly and long known to the public as a publisher and a politician, and from first to last held in much esteem by a large circle of private friends, took place a short time since. About 16 years ago, when Mr. Tait retired from business, he purchased the house and property of Prior Bank, near Melrose, where he has chiefly resided ever since, though still retaining his house in Edinburgh. His naturally vigorous frame and careful and temperate habits ensured him good health until last January, when a severe influenza was followed by a slight attack of a paralytic nature, from which he never quite rallied, and which was twice repeated. Latterly his weakness increased, and he died on Tuesday morning, the 4th of October. His age was 72. He was unmarried, and the nearest relative he leaves is his sister, Mrs. Adam Black. Mr. Tait was a man of very distinct individuality of character. He was able in all things to follow the bent of his own independent will, for his father, a successful builder, left him wealthy. While in business as a publisher, his easy circumstances removed from him one motive for very active exertion, and such attention as he bestowed on his profession was in a great measure directed towards the promotion of his political opinions—hence it is believed that he did not add materially to his wealth during the period of his business life. In 1832, he established *Tait's Edinburgh Magazine*. It appeared for some time in the shape and at the price (2s. 6d.) of the established magazines; but he soon reduced it to 1s., thus taking an important step in the progress of cheap literature. This periodical did

much to stimulate and freshen the liberal cause, the more so, perhaps, that it was not very closely bound to party purposes. Any one who had a bold and original thing to say, if he could write tolerably, was pretty sure of getting out the "bit of his mind" in *Tait's Magazine*, however much it might offend prejudices, public or personal. Mr. Tait's politics were professedly those of an independent Radical, swayed by a strong friendly feeling to the Whig party. In the great contest for the representation of Edinburgh in 1847, when a coalition was formed between the radicals and the Tories and the teetotallers and the publicans, Mr. Tait protested against the conduct of those with whom he usually acted, and came to the hustings as the seconder of Macaulay. Mr. Tait had received a liberal education, was a considerable reader, and enjoyed literature both when he was concerned in its practical furtherance and in the case of his retirement. One of his chief enjoyments was in music, and he was no mean performer on the pianoforte. He was above the ordinary size, handsome and strong built, with an erect walk and a certain grave expression, caused by absence of mind, to which he was a good deal liable. He was a good, easy, kindly man at heart—affectionate to relations, and attentive to friends, of whom a large circle will long and sincerely mourn his loss.

Publications Issued.

THE REPTILES OF BRITISH INDIA, by Albert C. Günther, M.A., M.D. (published for the Ray Society. R. Hardwicke).

A HISTORY OF THE SPIDERS OF GREAT BRITAIN. By John Blackwell. (Ray Society. R. Hardwicke.)

MILITARY SURVEYING, including the principles of Topographical Drawing, by Capt. Lendy, F.G.S., F.L.S., Director of the Practical Military College, Sunbury. (Atchley and Co.)—This work, Capt. Lendy states, is chiefly written for the benefit of the large majority who have no knowledge, or, at all events, an elementary knowledge only, of military surveying. The work is illustrated with a beautiful collection of plates showing the various methods of representing ground, &c.

PISCICULTURE ET CULTURE DES EAUX, by P. Joigneaux. (Paris: Librairie Agricole.)—This work, in addition to treating generally on the subject, gives a history of it, and a summary of such of the French laws as affect the fresh-water fisheries.

IMPORTANZA ECONOMICA DEI PESCI ET DEL LORO ALLEVAMENTO ARTIFICIALE. (Torino: G. Favale e Comp.)

DICTIONARY OF GEOGRAPHY, Descriptive, Physical, Statistical, and Historical, forming a complete general gazetteer of the world, by Keith Johnston, F.R.G.S. New edition, 1864. (Longman and Co.)—The original title of this work, as it appeared in 1854, is retained but the work itself has been entirely rearranged. The various alterations of territorial boundaries in Europe and elsewhere, consequent on the political changes which have taken place since that period, are noted. The progress of colonization in our own and the French colonies and geographical discovery are duly noted, as well as the numerous localities in the United States which have of late come into notice connected with the struggle between the Federals and the Confederates. The text is contained in 1,402 pp., closely printed in double columns. The population of each place is given from the latest official returns, the trade and products noted, the shortest sea and land routes given between places of commercial importance, with notes on climate, &c.

Forthcoming Publications.

CHEMICAL TECHNOLOGY, by Messrs. Richardson and Watts (Baillière), a new volume (600 pp.) of the Illustrated Scientific Library, will appear in November. It will contain articles on aluminium, sodium, soda, potash, artificial stone, phosphorus, lucifer matches, hyposulphite of soda, borax, mineral waters, saltpetre, nitric acid, gunpowder, gun-cotton and fire works, with description of their properties, mode of manufacture, and applications.

GANOT'S PHYSICS, experimental and applied. (Baillière.)

Notes.

ELECTRIC TELEGRAPHY.—The statistics of the telegraphic system in the United Kingdom—that is, of the telegraphs open to the public, for there are many purely private lines—are remarkable and interesting. The capabilities and operations of the system have steadily increased year by year. In 1861, there were 11,528½ miles open; in 1862, 12,711½ miles; while last year the lines were extended to cover 13,892½ miles, which, however, consisted of 65,012½ miles of separate wires. The number of stations was increased in proportion, and last year there were 1,755 open, containing 6,196 instruments, through which about 3,400,000 messages were sent. In addition to the lines actually on British soil, the submarine lines to Calais, Boulogne, Dieppe, Jersey, Ostend, Hanover, and Denmark, with which the other lines are more or less all in connection, cover 887 miles, with 2,683 miles of wire. This line has upwards of 3,000 stations in foreign countries. The messages sent by it to and from foreign countries were in 1861, 230,000; in 1862, 310,595; and in 1863, 345,784, while the mileage was not increased. The several lines were last year, Electric and International, 8,230 miles of line and 39,042 of wires, 1,022 stations. The number of messages sent by this company during 1863 has not been ascertained, but, calculating the proportion of increase from the returns of the two years immediately preceding, may be estimated at nearly 2,000,000. The British and Irish Magnetic, 4,196½ miles, 17,257½ miles wires, 464 stations—827,424 messages; South-Eastern Railway, 316 miles, 2,642½ miles wires, 94 stations, and 62,968 messages were sent; London and Brighton Railway, 212 miles, 541½ miles wires, 46 stations—43,208 messages; London District, 107 miles, 430 miles wires, 81 stations—247,606 messages; and the United Kingdom, 831 miles, 5,099 miles wires, 48 stations, whence 226,729 messages were forwarded.

SCIENTIFIC EXPEDITION TO MEXICO.—Several distinguished men of science have been appointed to proceed to Mexico, and some have already sailed. Two engineers, Messieurs Guillemin and Cognet, known by their voyage to Madagascar, are to examine the mines. M. Brasseur de Bourbourg, who is known as having examined deeply into the history and language of the Aztecs, is to pursue his studies of the interesting subject of early American civilization. M. Boucourt, a painter attached to the Museum of Natural History, is to explore the mountains of the country; this artist returned from Siam five years since with a splendid collection of sketches and a vast mass of specimens of natural history. M. Méhédin, another artist, is joined in the commission; he has made an expedition to Egypt and Syria and brought home some very fine photographs from the banks of the Nile; he also originated an ingenious method of taking copies of hieroglyphics and other carvings on stone by means of thick moistened paper, which dries quickly and hard under an eastern sun, weighs comparatively nothing, and yields an excellent cast in plaster. The mode of working is simply to wet the paper and press it carefully into the design with a sponge. Three or four years since a facsimile of an Egyptian obelisk, covered with figures and inscriptions, was exhibited by M. Méhédin in the Palais de

l'Industrie; this was produced by the process referred to, but the moulds themselves were set up and brushed over with whitewash or something of the kind. The illusion was complete; no one imagined the material to be other than stone.

THE HASTINGS AND ST. LEONARD'S INDUSTRIAL EXHIBITION.—The Hastings and St. Leonard's Working Classes' Industrial Exhibition was formally opened on Monday, the 17th inst., under the most auspicious circumstances, in the Temperance Hall, Norman-road West, Hastings.

CRINOLINES.—"We lately mentioned," says the *Nord*, "that a manufactory at Lyons had received an order for 300,000 kilogrammes of steel bands for making crinolines. That quantity, which at the first glance might appear exorbitant, is far below the reality. One house alone in Paris sells annually 600,000 kilos. of those hoops. In order to form an idea of the extent of that branch of commerce the calculation must be made that every woman or girl has at least two of those articles of dress, each weighing on an average 500 grammes, being one kilogramme of steel for each person. As, therefore, the adult female population amounts to 12,000,000, it is that number of kilos. of steel which is annually used for the fairer portion of the French people."

RAILWAY STATISTICS IN FRANCE.—It appears, from a publication issued by the Ministry of Agriculture and Public Works, that the total length of railway open to the public during the year 1862 was 57,209 kilometres (five-eighths of a mile each), which produced 2,000,735,007f., or an average of 34,962f. per kilometre. The receipts per kilometre in the different countries of Europe were as follow:—France, 45,781f.; Great Britain and Ireland, 40,417f.; Saxony, 37,152f.; Austria, 33,709f.; Prussia, 30,945f.; Belgium, 29,712f.; Wurtemberg, 27,068f.; German Duchies, 26,423f.; Russia, 26,045f.; Holland, 26,008f.; Hanover, 24,007f.; Italy, 22,070f.; Bavaria, 21,737f.; Spain, 20,966f.; Denmark, 15,207f.; Portugal, 9,801f.; Turkey, 5,028f.; and Sweden and Norway, 4,383f. The cost of construction of the French lines, consisting of a network of about 20,000 kilometres, is estimated at an average of 362,950f. per kilometre, at the charge of the companies. If that outlay is compared with the gross receipts of 45,781f. per kilometre, which is reduced by the working expenses (about 40 per cent.) to 27,469f., the result will be that the capital invested in the form of shares or obligations produces a revenue exceeding 7½ per cent. Such a return, without being excessive, would be satisfactory if the companies could consider it to be definitely acquired, but such an illusion is not to be permitted. There still remain 10,000 kilometres to be opened, and admitting that they will produce an average of 30,000f. per kilometre, this second portion of the French network will only leave a clear income of 15,000f., deduction being made of 50 per cent. for the working expenses, the proportion of which increases as the gross receipts diminish. So that the net produce per kilometre being destined at a future date to amount to 21,234f. 50c. only for the whole of the French network, that average will represent but 5f. 85c. per cent. of the capital invested, a rate corresponding exactly with that at which the companies contract their loans. As to the engagements to assure the execution of the French lines, entered into by the public treasury, which has to aid the companies in paying the interest on the capital absorbed when they are unable to do so themselves, the guarantees granted to the railway companies may be estimated as likely to amount in eight or ten years to 30,000,000f. annually. There is no doubt a considerable sacrifice, but one justified by the grandeur of the work which will then be accomplished.

THE AMERICAN SCHOOL OF MINES.—The immense value of the mineral deposits of the United States is so well known to Englishmen that it has long been recognised by them that the judicious application of capital is all that is required to elevate the mineral industries of the country to that proud position of being first in contri-

buting to the general wealth of the nation. Hitherto great inconvenience has arisen from the difficulty of obtaining reliable information from America as to the peculiar merits or disadvantages of any particular mineral property brought under the notice of English capitalists; there were no American engineers who especially devoted themselves to the subject, and English engineers, specially sent out, were necessarily unacquainted with the peculiarities of the districts reported upon. The difficulty will henceforth be removed; a well-constituted School of Mines, the first session of which will open on November 15, being now attached to Columbia College, New York, the principal chairs having been given to the most competent men that could be found, many of whom have honourably distinguished themselves at the Imperial School of Mines at Paris, and other schools of equal reputation. The standard of instruction will be as high as in any of the mining colleges of Europe, and the advantages which must thus accrue to the mineral interests of America can scarcely be over-estimated. It must be particularly gratifying to Englishmen to find that Columbia College should be first to found so important an institution as the American School of Mines, since that college must ever remain a connecting link between England and America. It was originally founded as King's College, New York, by George III., at the same time as the now celebrated University of Gottingen; and although some trifling internal dissensions for a time prevented Columbia College from attaining the distinction of its twin sister, it is to be hoped that impediments no longer exist to its onward progress, and that both as a school of mines and as a university Columbia College will be known and respected throughout the world.

A NEW DISCOVERY IN POMPEII.—The recent excavations at Pompeii have led to another interesting discovery. A square block of white marble was found near the Isis gate, on the sides of which the Roman calendar is engraved. Each side contains three months in three columns, over each the zodiacal sign of the respective month. Interesting, and for some even important, notices are written against the days, with regard to astronomy, agriculture, and the religion of the Romans. Thus the days of the religious festivals, &c., are accurately marked. Near the top Apollo is seen driving the chariot of the Sun, whilst below, near the base, Ceres is engaged collecting corn into a sheaf. This curious remnant of bygone days is now placed in the museum at Naples.

REVIVED CORKS.—The attention of the French public has been called by M. Stainslaus Martin to the employment of refuse corks as dangerous to public health. It is the custom of the Paris scavengers to collect those which are brought down by the sewers, and sell them to persons who make it their business to revive them. If the corks are of unsightly shape they are re-cut; while, if containing holes, these are filled up with mastic, and then smeared with a powder to give them a proper colour. Such corks used only to be employed by the ink and blacking makers, but their low price (5s. 6d. per 1,000) has of late induced retailers of bottled beverages to purchase them. M. Martin asks if there be not ground for alarm lest some of these corks may have been formerly used to stop bottles containing poisonous substances; for although a good cork is not permeable, a bad one, full of holes, may readily become the receptacle of particles of verdigris, carbonate of lead, arsenic, or an infinity of other poisonous substances, which may be more or less soluble in water, wine, beer, cider, vinegar, milk, or oil. The *Medical Times* expresses a hope that these revived corks may never give rise to juridical errors, causing the innocent to be declared guilty.

ILLUMINATION OF STREET NAMES.—Several attempts have been made to render the titles of the streets of Paris as visible at night as in the day time, and at last apparently with success. The labels in the neighbourhood of the Hôtel de Ville are now lighted up in the following manner:—The frame in which the letters are set is made in the form of a rectangular trough, the upper and lower

portions being pierced with holes to allow of proper ventilation, and within this is a gas pipe with a number of small jets according to the length of the tablet, and, consequently, the number of transparent letters to be illuminated. The upper part of the box, or trough, opens to allow of lighting and repairs, and is closed by a counterpoise concealed in the stonework of the walls. We are not informed yet of the cost of this very useful arrangement. It was only in 1728 that the streets were marked with their names; previously to that time it was a mere matter of local knowledge and tradition, and it is little wonder, therefore, that the names of many streets and other places became so altered and vulgarised that it is now very difficult to trace their derivation. Of this, the street now called *Rue Gît-le-Cœur* is a remarkable instance; there are two or three readings of the original meaning, but none of them satisfactory. The probability seems to be that the present title is the corruption of a proper name.

DISCOVERY OF VESTIGES OF THE ANCIENT AQUEDUCT OF ALATRI.—M. P. Secchi has sent to M. Elie de Beaumont, for the Paris Academy of Sciences, an account of his discoveries at Alatri, famous for its supposed Pelasgian origin, and its so-called Cyclopean walls. Situated on the summit of a mountain of the Apennine range, it was entirely without water, and the valley around it was nearly four hundred feet deep. A well-known inscription records that L. Betilienus Varus brought water for the town from the neighbouring heights by means of an aqueduct 340 feet high, and that for this work he constructed strong arcades and pipes. Surveys ordered by the Pope for the present supply of the town have given rise to the discovery of the ancient aqueduct throughout nearly its whole length. The level of the lowest part of the construction agrees exactly with the figures of the inscription quoted above, and thus we find an aqueduct with a reversed syphon, under a pressure of eleven atmospheres, constructed 160 years before the commencement of the Christian era. The dimensions of the piers of the aqueduct are about six feet by four feet and a half, and it is calculated that the conduit was sufficient to furnish the public baths and fountains and the whole of the town, which is found to be crossed in every direction by leaden and earthen pipes. Near the Acropolis have been found some brazen pipes, which are believed to be referred to in the Latin words of the inscription, as *fistules solides*. The aqueduct is constructed precisely according to the rules laid down by Vitruvius; and it is carried on a level with the Acropolis for about three miles, then descending the side of the mountain to the lowest point, runs again on a level for 500 or 600 yards, and then again ascends. At present nothing but the foundations remain.

Correspondence.

DWELLINGS OF THE LABOURING POOR.—SIR,—In the papers of Thursday (21st October), Lord Stanley is reported to have declared at Lynn that the law of settlement wanted amendment. The papers the next day reported that the Duke of Rutland had said at an agricultural meeting as follows:—"He had observed in almost all the speeches that had been made this year at agricultural dinners—and he had observed it with the greatest possible pleasure and satisfaction—allusion had been made to the condition of the labourer, and more especially to the condition of the labourers' cottages. This was a question which it was for the welfare of the agriculturists of this country to consider. It was important, no doubt, for them to consider the comparative merits of artificial and farm-yard manures; the rotation of crops, and what they should grow instead of wheat was, no doubt, also important; not less important was the question whether the steam plough was an implement that would repay them

for the outlay, or whether it was an expensive toy. Important as all these and a hundred other questions were, paramount and foremost of all was the condition of the labourers and the condition of their cottages. The labourer was the substratum of the soil—the man whose hands must carry out whatever they intended to do, and the man the value of whose labour produced the value of the land." I beg leave to suggest to you that you should carefully examine the newspapers published since the Conference on this subject at the Society of Arts, and extract shortly the opinions of the several speakers on the subject of the dwellings of the poor. The collection will be very useful for reference hereafter. I suggest also that the Council with this subject adopt the course they successfully followed with that of copyright. Immediately on the opening of Parliament let a large deputation be organised to wait upon Lord Palmerston to urge that the government take up the matter and devise the necessary remedies. The Society and others may suggest, but the responsibility for finding out and doing what is needful rests clearly with the government of the country. If this be done, the Society will be in much better position to hold its annual conference later in the session, and take stock of what has been done since the last meeting.—I am, &c.,

A MEMBER.

SQUARES OF LONDON.—SIR,—In last week's *Journal*, "P.," who has lately returned from Paris, institutes a comparison between the small "*places*," with their brilliant verdure and bright flowers and our own Leicester-square. Gardening might equally well be applied to the churchyards of many parishes in the centre and suburbs of London now falling into neglect and decay from the uncertainty which prevails as to their future destiny. A circular from the proper authorities of each churchyard to surviving representatives, to put their memorials in order, the removal of such as had fallen into decay and unclaimed, a tree or a flower bed placed therein with the judicious eye of a landscape gardener, would change that which is becoming an obnoxious reproach to all concerned into spaces of beauty and moral value in our midst, and secure from future desecration the open spaces, which the Chancellor of the Exchequer pointed out at Farnworth was the crying want of great and growing cities and would remind the authorities—that property has its duties as well as its rights—and prevent any fidgetty promoter of money-getting joint-stock companies from turning his attention in that direction.—I am, &c.,

HENRY WEBBER.

THE ELEMENTARY AND FINAL EXAMINATIONS.—SIR,—The experience of the last eight years has incontestably proved the great value of the Examinations of the Society of Arts to the members of mechanics' and similar Institutes; and I believe it will be found that the Elementary Examinations will, when fairly tried, prove of yet greater advantage, because they will be applicable to a much greater number of candidates, and not only stimulate class instruction, but assist Local Committees in preparing candidates for the Final Examinations. An examination, even if unsuccessful, is a great assistance to the candidate; and from the many opportunities for observation which I have had as Secretary of the West Riding Educational Board, I am convinced that those candidates who have been submitted to previous examinations are almost in all cases the most successful. The system of Elementary Examinations which was commenced in 1862, has hitherto been but very partially adopted, and as it has proved of great value where it has been tried, I give a brief summary of my experience during the last few weeks as Visiting Officer of the Society of Arts in the Yorkshire district, in the hope that it will encourage similar efforts, and induce many other Institutes to follow their example. On Friday, 16th September, I visited Slaidburn, a small town in the Bowland district. There was a large meeting in the Court House, the rector of the parish in the chair. On the

platform were four other clergymen, two country gentlemen, and Messrs. Jonathan and Robert Peel were only prevented from being present by a domestic calamity. After an address from the chairman, Mr. Wilkinson, a large landed proprietor, presented no less than eleven Elementary Certificates to members of the Mechanics' Institution. The most lively interest was taken in the proceedings, and the meeting was one of the most crowded ever remembered. On Wednesday, 21st September, there was a large meeting in the Town Hall, Leeds, when Sir Stafford Northcote, Bart., M.P., presented a very large number of certificates and prizes to the successful candidates at the Elementary, the Society of Arts, the Science Class, and the Universities' Examinations, held by the West Riding Educational Board. There were full reports of the able speeches on the occasion in *The Times* and other newspapers. On Friday, 23rd September, I was at the annual meeting of the Bradford Mechanics' Institution, which was very fully attended. Alderman Law, who was in the chair, presented a large number of certificates and prizes to the successful candidates at the Society of Arts, local, and School of Art Examinations. On Monday, 26th September, I attended a meeting of the Stockton Mechanics' Institution, when Joseph Dodds, Esq., the chairman, presented several certificates to successful candidates at the Elementary Examinations, and expressed himself so well pleased with the scheme that he offered five guineas to be given in local prizes next year. Mr. Joseph Byers, late Mayor of Stockton, and an old member of the committee, said he was much gratified with the proceedings; he feared that the Institutes were degenerating into mere news-rooms and libraries, but the Elementary Examinations were restoring them to their legitimate functions as educational institutes. On Friday, 30th September, I was present at the annual meeting of the York Institute of Popular Science and Literature. S. W. North, Esq., the chairman, presented several of the Society of Arts Certificates to successful candidates, after which I explained the system of Elementary Examinations, and recommended its adoption. The Rev. H. V. Palmer, Mr. Dyson, and other members of the committee expressed their great approval of it, and an animated discussion showed the interest which was excited. On Saturday, 8th October, I attended the annual soirée of the Hebden-bridge Mechanics' Institution, which was held in the Ebenezer School-room, and was fully attended. H. W. Horsfall, Esq., who was in the chair, presented two senior certificates to successful candidates at the Elementary Examinations, after which I addressed the meeting, and pointed out the many advantages, not only to the members but to the Institute, and the most lively interest was manifested. On Monday, 10th October, I was present at the annual soirée of Pudsey Mechanics' Institution. There was a very full attendance, and Alderman Carter, of Leeds, was in the chair. I gave an explanation of the mode of conducting the Elementary Examinations, and pointed out the many advantages which would be obtained by its adoption. On Wednesday, 12th October, I was at Faversham, in Kent, where the Mayor, F. W. Monk, Esq., presented the Society of Arts Certificates to members of the Institute who had been successful at the Examinations. I called the attention of the meeting to the importance of adopting the Elementary Examinations, and the next day had a conference with the Committee of the Kent Association of Institutes on the subject. On Monday, 17th October, I attended the annual soirée of Hunslet Mechanics' Institution, the large hall of which was filled. The Mayor of Leeds, O. Nussey, Esq., was in the chair, and there were also present three aldermen and three town councillors of Leeds. The chairman presented to successful candidates twelve Elementary Certificates and three prizes, given by the West Riding Educational Board, beside two Certificates of the Society of Arts. The proceedings excited considerable interest,

and Alderman Blackburne, the President, offered £6 for local prizes next year. On Wednesday, 19th October, I was present at a meeting of the Thirsk Mechanics' Institution, which was fully attended. Sir William P. Galloway, Bart., M.P., was in the chair, and had the agreeable duty of presenting to the successful candidates at the Elementary Examinations no less than forty-five certificates and six prizes given by the West Riding Educational Board, besides six prizes given by the Institution for success at the Elementary Examinations. On Friday, 21st October, I met a full Committee of the Ossett Mechanics' Institution, to confer with them on the public presentation of six Elementary Certificates and one Prize, given by the West Riding Educational Board, which had been gained by members of the Institution. The President offered three local prizes for next year's Examinations, for which active preparations are being made, though the Institution labours under the disadvantage of having no building. Besides the above, meetings have also been held at Middlesborough Mechanics' Institution, and Acomb Literary Institution, for the presentation of Society of Arts and Elementary Certificates, but I was unable to attend them on account of other engagements.—I am, &c., BARNETT BLAKE.

MEETINGS FOR THE ENSUING WEEK.

- TUES...Anthropological, 8. 1. Mr. C. Carter Blake, "On the Anthropological Papers read at Bath." 2. Capt. R. F. Burton, "On a Visit to Dahomey."
- THURS...Linnean, 8. 1. Mr. Mogridge, "On some Orchids of the South of France." 2. Mr. Bentham, "On *Leptolobium*."
- Chemical, 8. 1. Prof. Wanklyn, "Isolation of Electro-negative Radicle Valeryl." 2. Messrs. Graham, Stuart, and Baker, "Existence of Nitrogen in Steel." 3. Mr. W. Baker, "Concentration of Nickel in Lead by Pattinson's Process." 4. Prof. Church, "Effect of Ignition on Garnets, &c.," and "Colouring Matter of Certain Rocks."

Patents.

From Commissioners of Patents Journal, October 21st.

GRANTS OF PROVISIONAL PROTECTION.

Albumen, substitute for—2428—R. A. Brooman.
 Alumina, treatment of sulphate of—2407—A. A. Croll.
 Ammoniacal preparations—2432—R. Laming.
 Aniline, &c., rendering soluble colours in crystals derived from—2411—R. A. Brooman.
 Arms, breech-loading—2349—W. Greener.
 Boots and shoes, manufacture of—2209—P. A. Le Comte de Fontaine-morean.
 Break blocks—2401—G. Lindsley.
 Bricks, &c., manufacture of—2440—T. Dobson.
 Cocks, valves, and taps—1473—P. B. O'Neill.
 Cocoa nut, separating coir fibre from the husk of—2431—G. T. Bousfield.
 Collars, cuffs, &c., machinery for embossing, &c.—2414—W. E. Newton.
 Cotton, machinery for ginning—2406—J. T. Pendlebury.
 Cotton, machinery for opening and cleaning—2392—W. Crowther.
 Distilling apparatus, steam machinery and sea water—2410—W. H. Graveley.
 Drilling braces and screw keys—2395—S. Alley.
 Engines—2331—E. R. Handcock.
 Fabrics, apparatus for coating and flocking—2422—J. H. Johnson.
 Filter presses—2101—G. Davies.
 Fruit dressing machine, portable—2091—W. H. Barnicoat & D. Barr.
 Hair brushes, mounting rotary—2412—J. Jennings.
 Hinges, manufacture of—2426—W. E. Gedge.
 Human body, surgical appliances for the support of parts of the—2409—C. G. Gumpel.
 Hydrostatic rotary engine, obtaining continuous motion by means of a—2335—B. W. A. Sleigh.
 Injectors, adapting and applying pneumatic—2334—J. Rhodes.
 Iron pipes, apparatus for casting—2357—W. Scott.
 Knitting machinery, needles employed in—2427—L. and C. Cashmore.
 Ladders, construction of—2421—H. Druce.
 Ladies' boots—2408—H. J. Keer.
 Lighting and ventilating—2393—C. Defries.
 Liquids, fermentation of—2394—J. Watts.
 Locks, latches, &c.—2446—H. A. Bonneville.
 Loom, projecting the shuttle of a, through the shed—2291—F. Tol-hausen.
 Looms—2417—J. S. Grimshaw.

Looms—2450—G. H. Castree.
 Money, apparatus for counting—2390—J. Schuehr.
 Motive power, transmitting—2433—J. H. Johnson.
 Oils, machinery for refining—2342—A. H. Brandon.
 Pipes, machinery for moulding—2333—P. Barr.
 Printing cylinders—2400—R. A. Brooman.
 Purses, books, &c., fastenings for—2434—C. Shether.
 Purses, boxes, &c., fastenings for—2381—W. Clark.
 Quarries, tiles, bricks, &c., kilns for burning—2398—T. Bennett.
 Railway carriages, breaks for—2429—S. Bateman.
 Railway trains, communicating signals in—1755—E. Burstow.
 Railway trains, communicating, watching, and signalling throughout—2165—J. Barber.
 Railway trains, signalling between passengers and guard—2083—J. S. Farmer.
 Railway turn-tables—2445—C. Greenway.
 Reaping or mowing machines—2418—P. Winton.
 Resinous substances, purifying—2443—J. and T. Johnson.
 Rifles, &c.—2403—H. C. Hurry and E. Wilson.
 Sails, reefing—2399—G. Allix.
 Sails, reefing and furling—2438—T. A. Swinburne.
 Screw threads, apparatus for forming—2439—E. Davies.
 Ships, bolts used in the construction of—2236—J. H. Ritchie, jun.
 Shop fronts, &c., apparatus for lighting—2290—F. Tolhausen.
 Soda, &c., decomposing common salt in the manufacture of—2413—J. Johnson.
 Springs, railway carriage, &c.—2404—W. F. Henson.
 Steam boilers, apparatus for heating—2441—A. Monro.
 Steam engines—2437—G. Haseltine.
 Steam engines, slide and cut-off valves for—2391—A. Cuthell.
 Tap, high pressure non-leakage—2085—S. Sharp and A. Double.
 Tea, coffee, &c., obtaining extracts from—2420—E. Loysel.
 Thread, machinery for winding—2452—H. Conant.
 Vehicles—2415—W. Clark.
 Ventilators—2435—T. K. Callard.
 Vessels, registering the course steered by—2350—W. Arthur.
 Welding metals—2436—H. J. Standly and W. Prosser.
 Wire fences, manufacture of—2419—E. O. and J. Greening, and H. Shield.
 Wood, application of thin strips of, to new and useful purposes—2378—G. Davies.
 Yarns and threads of silk, apparatus for dressing, &c.—2416—R. M. Haqds.

INVENTIONS WITH COMPLETE SPECIFICATIONS FILED.

Furnaces, &c., moving grades or fire-bars for—2569—J. Zeh.
 Power looms—2532—W. E. Gedge.

PATENTS SEALED.

987. S. Harrison and W. Clements.	1060. R. A. Brooman.
989. J. P. Harris.	1063. L. E. C. Martin.
1009. F. Potts and C. Harvey.	1064. J. Cookson.
1017. G. F. Harrington.	1066. R. Melling, jun.
1018. J. Thompson.	1067. C. O. Papengouth.
1019. J. E. Duyck.	1069. A. Notman.
1024. G. J. Worsam.	1073. M. A. F. Mennons.
1026. T. P. Tregaskis.	1083. W. C. Cambridge.
1028. D. Lewis.	1101. J. Hunt.
1029. D. Hussey.	1110. S. Shaw and H. Fishwick.
1030. J. M. Pratt.	1136. E. Beanes & C. W. Finkel.
1033. T. H. Holderness and H. Jordan.	1138. A. V. Newton.
1035. F. G. Grice and H. Bennett.	1151. A. Barclay.
1036. H. Bennett.	1169. J. F. Empson.
1037. J. Dodge.	1171. J. Whitehead, sen., J. Whitehead, jun., and D. and H. Whitehead.
1038. J. P. Brinjes.	1172. H. Aitken.
1039. H. Marsden.	1195. A. Alison and J. Halliwell.
1040. W. Crofts.	1207. H. A. Bonneville.
1043. J. Symes.	1233. W. E. Newton.
1044. D. Harris.	1301. J. Baird and J. McIntyre.
1045. G. Haseltine.	1631. J. Corby.
1047. W. Taylor.	1651. G. F. Graham & W. Payne.
1049. T. S. Truss.	1681. B. F. Sturtevant.
1051. W. Thorold.	1699. G. Haseltine.
1054. L. A. Durrieu.	1966. G. A. Nowell.
1055. J. White.	2076. G. G. Boggio.
1056. T. J. Searle.	2113. G. Haseltine.

From Commissioners of Patents Journal, October 25th.

PATENTS ON WHICH THE STAMP DUTY OF £50 HAS BEEN PAID.

2597. C. D. Abel.	2654. J. H. Johnson.
2616. C. De Bergue.	2656. I. L. Pulvermacher.
2635. H. Frost.	2662. J. C. Heaton and J. Dean.
2650. A. Morel.	2665. J. McCall and B. G. Sloper.
2625. F. A. Calvert.	2666. K. A. Boyd.
2632. J. H. Johnson.	2744. R. Mushet.
2652. G. Davies.	2669. E. Chambers.
2680. B. J. La Mothe.	2638. F. O. Ward.
2649. J. F. V. Deliry.	

PATENTS ON WHICH THE STAMP DUTY OF £100 HAS BEEN PAID.

2672. H. Wimball.	2753. W. Shields.
2673. E., II., and F. C. Cockey.	2707. J. Macintosh.
2695. T. and J. Hamilton.	2731. A. West.